

CONVENTIONAL MOSFET

FIG. 1
(PRIOR ART)

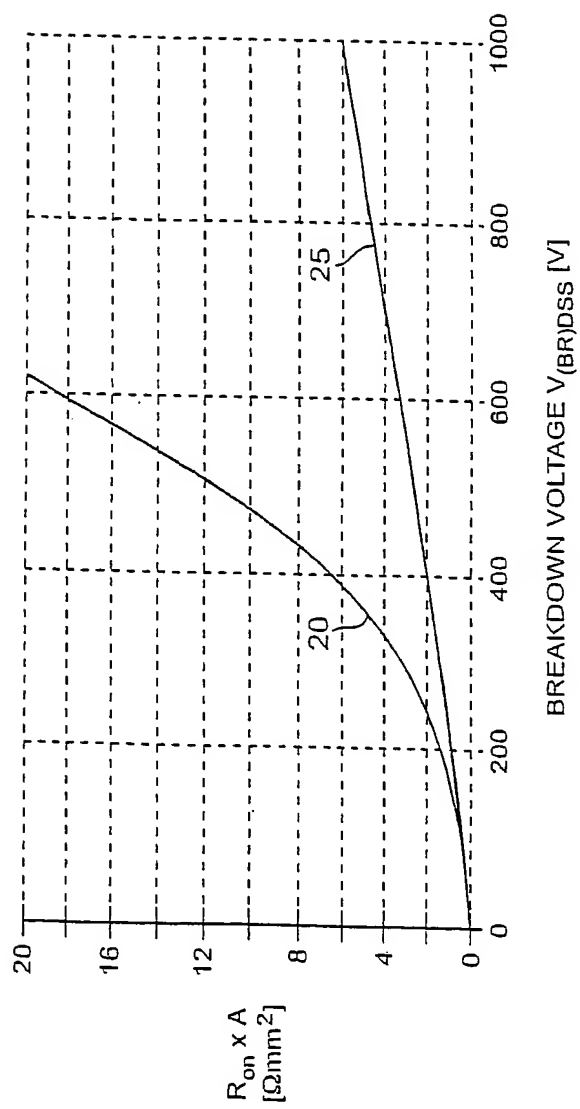
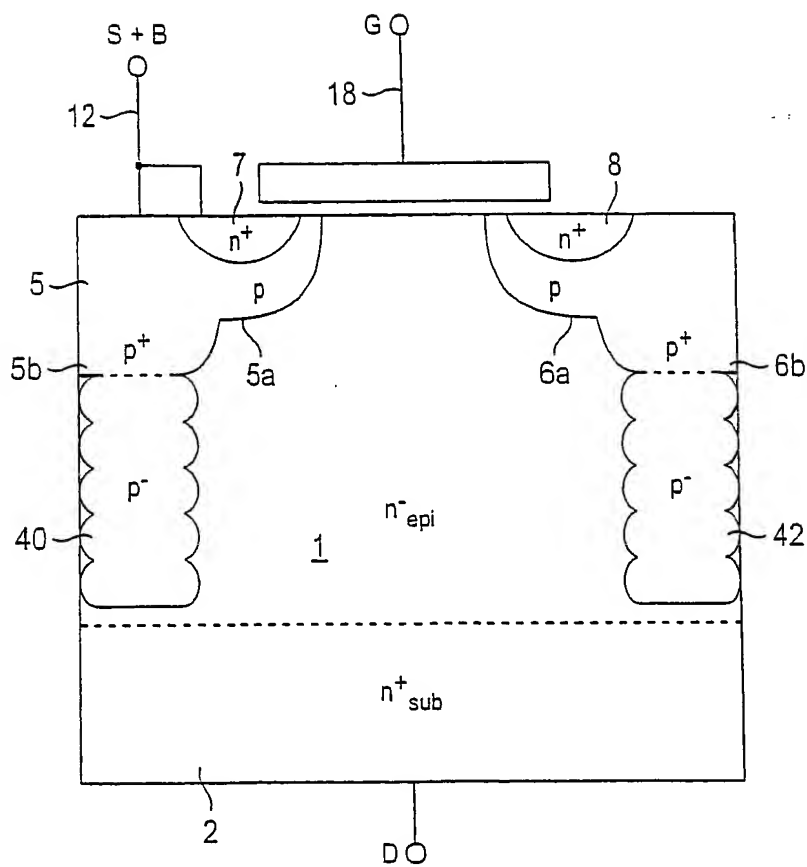


FIG. 2

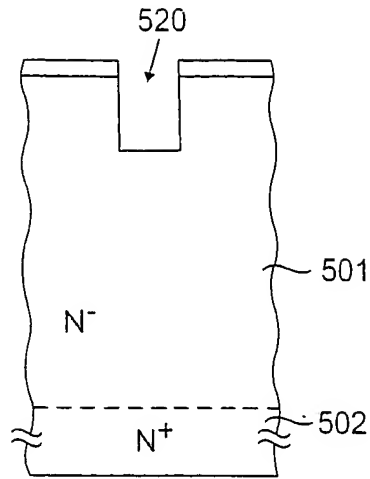


THE DOPANT DISTRIBUTION OF A HIGH VOLTAGE VERTICAL
DMOS TRANSISTOR WITH A RELATIVELY LOW ON-RESISTANCE

FIG. 3

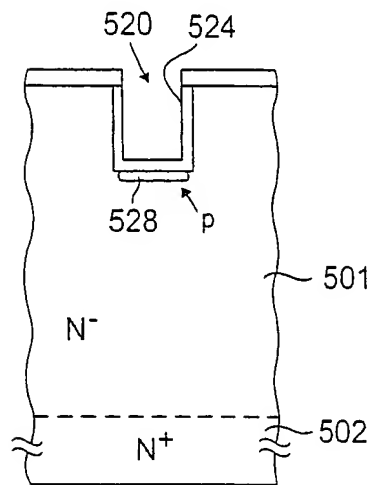
1. EPITAXIAL DEPOSITION
2. FORMATION OF THE TRENCH
ETCH STOP LAYER
3. MASK AND ETCH THE TRENCH
ETCH STOP LAYER
4. TRENCH ETCH

FIG. 4(a)



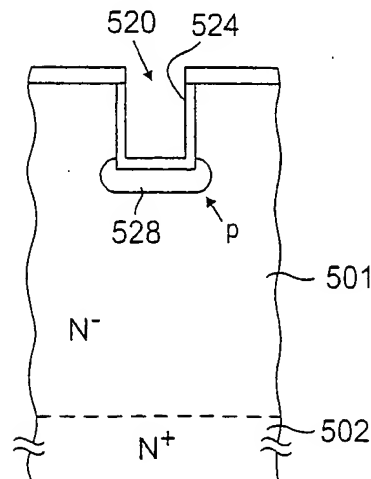
5. GROW THIN OXIDE LAYER
IN THE TRENCH
6. IMPLANT THE DOPANT

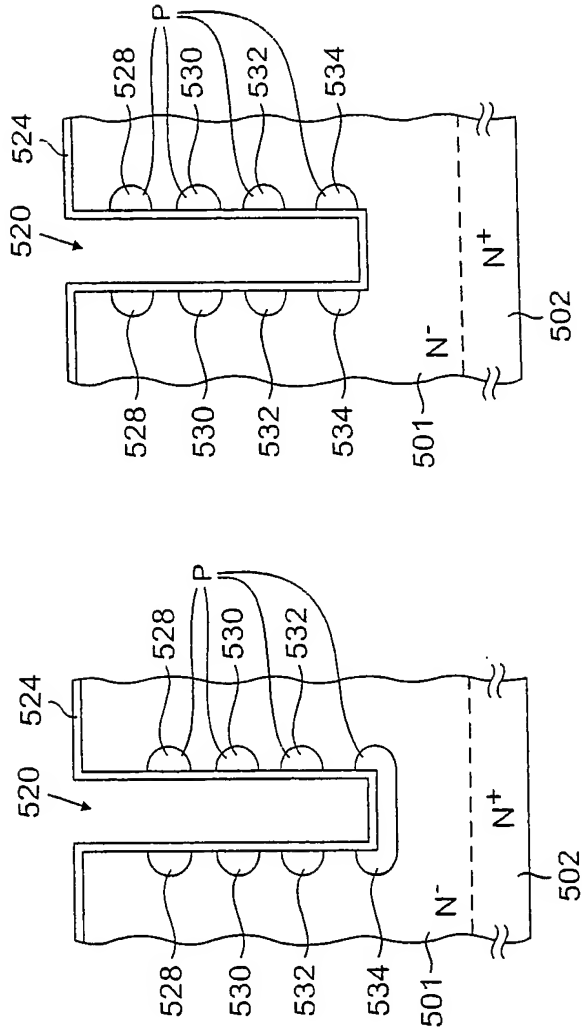
FIG. 4(b)



7. PERFORM A HIGH
TEMPERATURE DIFFUSION
8. ETCH THE OXIDE AT THE
BOTTOM OF THE TRENCH

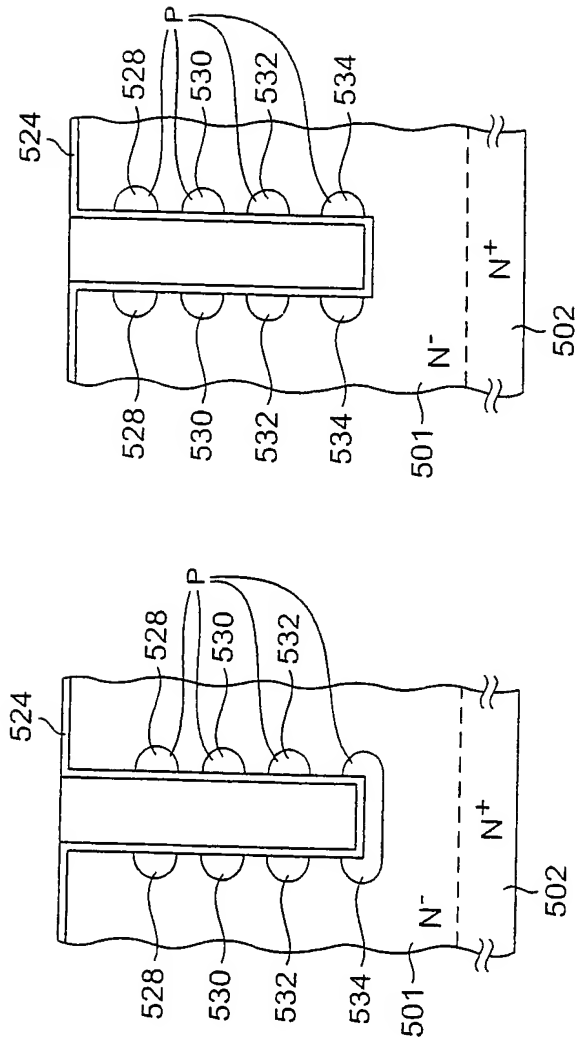
FIG. 4(c)





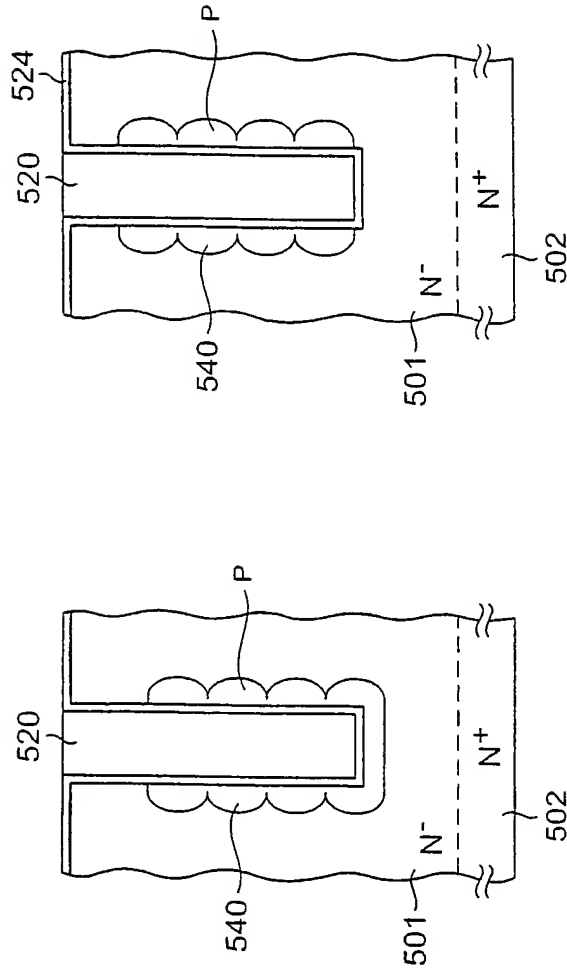
9. REPEAT THE DOPING AND ETCH STEPS AS MANY TIMES AS REQUIRED
10. DOP THE REGION FURTHEST FROM THE SURFACE

FIG. 4(d)



11. FILL THE TRENCH
12. PLANARIZE THE WAFER SURFACE

FIG. 4(e)



13. PERFORM A HIGH
TEMPERATURE
DIFFUSION STEP

FIG. 4(f)